

REMARKS

Applicant submits this response to the Office Action mailed June 23, 2009. Applicant appreciates the Examiner's thorough review of the application.

The drawings are objected to under 37 CFR 1.84(p)(5) and under 37 CFR 1.83(a). The Specification is objected to. Claims 16, 17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-3, 7, 9-11, 14, 15, 18, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huntsman (US 6,807,921 B2) in view of Patterson et al. (US 5,995,882 A). Claims 4-6, 12, 13 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Objection to the Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include a payload compartment 202, as set forth on page 5 (line 33) or a guidance system 315, as set forth on page 7 (line 22). The drawings are also objected to under 37 CFR 1.83(a) for failing to show every feature of the invention specified in the claims. Specifically, the drawings do not show electrical capacitors, as set forth in claim 18 or fluid accumulators, as set forth in claim 19.

Applicant is submitting replacement drawing sheets in which payload compartment 202 is added to Figure 2, rapid discharge device 314 (which may comprise a capacitor bank or fluid accumulator) is added to Figure 4, and guidance system 315 is added to Figure 4. Applicant has also amended the Specification to add a specific reference to rapid discharge device 314. Applicant respectfully submits that the replacement drawing sheets and the amendment to the Specification contain no new matter.

Objection to the Specification

The Specification is objected to, and the Office Action suggests the following changes: (a) on page 7 (line 21), before "ambient solar energy", change "collector" to - collect --; and (b) on page 8 (line 5), after "photovoltaic cells", change "406" to - 405 --.

Applicant has made the suggested change at page 7, line 21. However, Applicant disagrees with the suggested change at page 8, line 5. Page 8, line 5 properly references the photovoltaic cells between the outriggers which are labeled as '406' in Figure 7. Applicant notes, however, that the propeller in Figure 8 is improperly labeled as '406' as well. Applicant is submitting a replacement drawing in which the propeller in Figure 8 is properly labeled as '407' and amending the Specification to correspond with the revised Figure 8.

Rejection under 35 USC § 112, First Paragraph

Claims 16, 17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 16 recites the hybrid energy propulsion system utilizing, in addition to wave or water current energy, only renewable energy sources including temperature differential. Similarly, claim 17 recites the electrical machine as being driven by the drive element through wave action or water currents. Further, claim 19 recites a rapid energy discharge devices comprising fluid accumulators. The Office Action asserts that the Specification does not sufficiently disclose any specific equipment or mechanism that is capable of capturing/utilizing wave or water current energy, or a temperature differential for providing a propulsive energy, as being claimed. Further, the Specification also lacks sufficient detail on the mechanism of rapid energy discharge utilizing fluid accumulators. Based on this, the Office Action asserts that a person skilled in the art would not be able to make and/or use the claimed invention. Applicant respectfully disagrees with this assertion and traverses this rejection.

Regarding Claim 16, Applicant respectfully asserts that hydro energy conversion systems which use the temperature difference that exists between deep and shallow waters are well

known to one of skill in the art. As one of many examples, this technology is described at http://en.wikipedia.org/wiki/Ocean_thermal_energy_conversion.

Applicant has amended Claim 17 to recite that the electrical machine is driven by the drive element when the vehicle is propelled by wind acting on the hull and sails to charge the energy stores in a generator mode. Amended Claim 17 thusly describes a regenerative sailing mode, which is described at page 3, lines 17-22 of the present application. In a regenerative sailing mode, the vessel is propelled under sail (i.e., under wind power) and the forward motion of the vessel drives a fluid drive element such as a propeller, jet, or oscillating tail member. Applicant respectfully asserts that such a regenerative sailing mode is well known to one of skill in the art (see, e.g., <http://green.autoblog.com/2006/11/28/heard-of-regenerative-braking-how-about-regenerative-sailing/#>).

Regarding Claim 19, Applicant respectfully asserts that fluid accumulators as rapid energy discharge devices are well known to one of skill in the art. As one of many examples, this technology is described at http://www.engineersedge.com/hydraulic/accumulator_general.htm.

Rejection under 35 USC § 112, Second Paragraph

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended Claim 15 to address this rejection.

Rejection under 35 USC § 103(a)

Claims 1-3, 7, 9-11, 14, 15, 18, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huntsman in view of Patterson et al. The Office Action asserts that Claim 1 is satisfied if the prior art vehicle has energy stores capable of utilising solar energy, wave or water current energy, and wind energy. The Office Action then asserts that Huntsman's vehicle's energy stores are in fact capable of utilizing these three distinct types of energy.

Applicant has amended Claim 1 such that Claim 1 now positively recites that the energy stores utilize (not merely are "capable of" utilizing) these three distinct types of energy. Neither Huntsman nor Patterson disclose an unmanned ocean vehicle having energy stores that utilize

solar energy, wave or water current energy, and wind energy. In fact, there is absolutely no mention of solar energy or wind energy in either Huntsman or Patterson.

As neither Huntsman nor Patterson disclose an unmanned ocean vehicle having energy stores that utilize solar energy, wave or water current energy, and wind energy as recited in amended Claim 1, either alone or in combination, amended Claim 1 is patentably distinct from the cited references. Since Claims 2-22 depend from Claim 1, Claims 2-22 are also patentably distinct for at least the reason described above.

New Claim

New Claim 23 is added. Applicant respectfully submits that new Claim 23 contains no new matter.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that all of the claims of the present application are in condition for allowance. It is respectfully requested that a Notice of Allowance be issued in due course. The Examiner is encouraged to contact Applicant's undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 50-2127.

Respectfully submitted,



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